

DEC 27 2006

Appl. No. 10/761,985  
Examiner: Tran, Thien F, Art Unit 2811  
In response to the Office Action dated September 27, 2006

Date: December 27, 2006  
Attorney Docket No. 10113681

**REMARKS**

Responsive to the Office Action mailed on September 27, 2006 in the above-referenced application, Applicant respectfully requests amendment of the above-identified application in the manner identified above and that the patent be granted in view of the arguments presented. No new matter has been added by this amendment.

Present Status of Application

Claims 19-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Gruening et al (US 6,204,140, hereinafter "Gruening").

In this paper, claim 19 is amended, and new claims 31 and 32 are added. Support for amended claim 19 and new claims 31 and 32 can be found in page 8, lines 7-20 of the application. Thus, on entry of this amendment, claims 19-32 remain in the application.

Reconsideration of this application is respectfully requested in light of the amendments and the remarks contained below.

Rejections Under 35 U.S.C. 102(b)

Claims 19-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Gruening. To the extent that the grounds of the rejections may be applied to the claims now pending in this application, they are respectfully traversed.

The rejection of a claim for anticipation under 35 U.S.C. §102 requires that the prior art reference include every element of the rejected claim. Furthermore, as stated by the Federal Circuit, the prior art reference must disclose each element of the claimed invention "arranged as in the claim." *Lindermann Maschinenfabrik GMBH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984).

As amended, claim 19 recites a transistor, comprising:  
a source/drain region;

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a buried strap out-diffusion region adjacent to one sidewall of a deep trench; and  
a bended gate structure having a bended gate and a bended gate insulating layer, wherein the bended gate structure comprising a first portion extending along a first direction and a second portion extending along a second direction intersecting with the first direction, wherein the first portion of the bended gate is adjacent to the source/drain region and the second portion of bended gate is adjacent to the buried strap out-diffusion region, and on an overlapping region between the deep trench and bended gate structure, the sidewall profile of the deep trench comprises at least three edges.

In the rejections, the Examiner identifies the trench 12, gate conductor 20 and thin dielectric layer 39 of Gruening as the alleged "deep trench," "bended gate structure" and "gate insulating layer" of claim 19. However, Gruening does not teach or suggest that on an overlapping region between the trench 12 and gate conductor 20, the sidewall profile of the trench 12 comprises at least three edges. Thus, Applicant submits that Gruening does not teach or suggest the limitation "on an overlapping region between the deep trench and bended gate structure, the sidewall profile of the deep trench comprises at least three edges," as recited in claim 19.

For at least the reasons described above, it is Applicant's belief that the cited reference fails to teach or suggest all the limitations of claim 19. Applicant therefore respectfully requests that the rejection of claim 19 be withdrawn and the claim passed to issue. Insofar as claims 20-31 depend from claim 19 either directly or indirectly, and therefore incorporate all of the limitations of claim 19, it is Applicant's belief that these claims are also in condition for allowance.

#### New Claims 31-32

New claim 31 recites that on the overlapping region between the deep trench and bended gate structure, the sidewall profile of the deep trench comprises at least five edges. Applicant submits that Gruening does not teach or suggest this feature. For this independent and alternate reason, Applicant submits that claim 31 is allowable over Gruening.

New claim 32 recites a memory device, comprising:  
a source/drain region;

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a buried strap out-diffusion region adjacent to one sidewall of a deep trench; and  
a bended gate structure having a bended gate and a bended gate insulating  
layer, wherein the bended gate structure comprising a first portion extending along a first  
direction and a second portion extending along a second direction intersecting with the  
first direction, wherein the first portion of the bended gate is adjacent to the source/drain  
region and the second portion of bended gate is adjacent to the buried strap out-  
diffusion region, and on an overlapping region between the deep trench and bended  
gate structure, the sidewall profile of the deep trench is  $\square$ -shaped.

Applicant submits that Gruening does not teach or suggest that on an overlapping region  
between a deep trench and bended gate structure, the sidewall profile of the deep trench is  $\square$ -  
shaped, as recited in new claim 32. Applicant therefore submits that claim 32 is allowable over  
Gruening.

#### Conclusion

The Applicant believes that the application is now in condition for allowance and respectfully  
requests so.

Respectfully submitted,



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